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MECHANISM OF LUMINAL WIDENING AND THE CORRECTION OF PLAQUE- AND CARINA- SHIFT AT SIDE BRANCH OSTIUM BY KISSING BALLOON INFLATION FOR CORONARY BIFURCATION LESIONS: VOLUMETRIC INTRAVASCULAR ULTRASOUND ANALYSIS

Poster Contributions
Poster Hall B1
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Background: We investigated the mechanism of lumen widening at SB ostium (SBO) and the correction of carina-/plaque-shift by final kissing balloon inflation (FKI).

Methods: We studied 91 bifurcations from the J-REVERSE registry of provisional stenting for bifurcations, in which FKI and pre-/post-volumetric intravascular ultrasounds (IVUS) assessment were performed in both branches at an independent core-laboratory. Carina-shift after FKI was defined as a decreased vessel-volume (VV), and plaque-shift as an increased plaque-volume (PV). Residual SBO stenosis (RS) was defined as lumen area stenosis ≥50% immediately after FKI on IVUS.

Results: At the SBO, the increase in lumen volume correlated with the increase in VV (γ=0.79; P<0.01), though not with PV (γ=0.25; P<0.05).Plaque-shift was dominantly identified at SBO in 52.3%, whereas FKI could correct carina- and/or plaque-shift only in 34.1 % (Figure). RS was more frequently found at SBO with than without carina- and/or plaque-shift (40.0% vs. 7.1%; p<0.05). Independent predictors of plaque- and carina-shift to SBO were “plaque burden at proximal MV before FKI” (OR 1.1; 95%CI1.00-1.16; p<0.05) and “negative-remodeling at distal MV before intervention”(OR 4.24; 95% CI 1.11-16.1; p<0.05), respectively.

Conclusion: The mechanism of luminal widening by FKI was stretching vessel wall. FKI corrected carina/plaque-shift only in about 30%. The vessel configuration before FKI was related to plaque/carina shift, and associated with RS despite FKI.